

MARS Tasks | Grade 3

Page	Name of MARS Task	Year	Math Strand	Notes
2	Even and Odd Numbers	2003	NP, NO	Explain effects of adding odd #
5	Addition Trains	2003	NO, PFA	Find addends to equal sum
9	Vending Machines	2003	DA, PFA	Interpret pictograph, complete chart
13	Cherie's Shapes	2003	PFA, NO, GM	Use x or / to complete pattern
17	Patchwork Quilt	2003	GM	Mark two lines of symmetry

21	Dave's Pocket Money	2004	NO, NP	Find values of various coin comb.
24	Tropical Fish	2004	DA, NO	Complete table & bar graph
28	Symbols	2004	PFA, NP	Solve for x&y in two +-x/ sentences
32	Boxing the Pots	2004	GM, NO	Find box to fit plants w/ given dia.
36	A Silly Story	2004	NO, PFA	Solve problems with + - x /

39	Television Time	2005	DA, NO	Bar graph of min. spent watching shows
42	Katie's Kitchen	2005	GM	2-dimen. shapes, flips and turns
46	Number Cards	2005	NP, NO	Use number cards to create gr. Number
50	Sponsored Walk	2005	NO	Walk how far to raise \$20+
54	Teddy Bears	2005	PFA	Number of eyes, noses, buttons needed

57	Overview of 2006 Tasks			
58	Flower Garden	2006	DA	Use bar graph, compare & find values
60	Houses in a Row	2006	PFA	Toothpicks needed to make design
63	The Answer is 36	2006	NO	Missing numbers in + - x sentences
65	Pens and Pencils	2006	NO	Calc. buying groups of obj. find change
67	Garden Design	2006	GM	Area of shapes, make shape w/giv. area

69	Overview of 2007 Tasks			
70	Square Patterns	2007	PFA	Extend pattern, use of inv. oper.
73	Parking Cars	2007	DA	Use bar graph, compare & find values
76	Adding Numbers	2007	NO	Doubling, + - 2- & 3-digit numbers
79	Which Shape?	2007	GM	Use geom. vocab. describe sim. & diff.
82	A Question of Numbers	2007	NP	Compare, order numb. use numb. line

85	Overview of 2008 Tasks			
86	The Pet Shop	2008	NO	Use + - x / to solve problems, twice, half
88	House Numbers	2008	NP	Use 2 constraints to justify answer, x
90	Blob Bugs	2008	PFA	Number sequ. in diagrams, wrk bckwds
92	Looking Glass Land	2008	GM	Identify & draw lines of symmetry
94	Time to Get Clean	2008	GM	Time sch./table, convert min. to hours

96	Overview of 2009 Tasks			
97	Goldfish Bowls	2009	NO	Use +-x/ to solve prob., dividing equally
99	Birthday Decorations	2009	PFA	Extend pattern in pictures & table
101	Making a Doll House	2009	GM	Attributes of 2 shapes (sim. & diff)
103	The Math Test	2009	DA	Use bar graph, reason @ "more than"
105	Valerie's Puzzle	2009	NO	3x3 square with numbers 1-9 used once

NP=Number Properties
 NO=Number Operations
 PFA=Patterns Functions Algebra
 GM=Geometry & Measurement
 DA=Data Analysis

3rd grade Task 1 Even and Odd Numbers

Student Task	Solve to complete given number sentences using even and odd addends. Explain effects of adding odd numbers.
Core Idea 1 Number Properties	Understand numbers, ways of representing numbers, relationships among numbers, and number systems. <ul style="list-style-type: none">• Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates and compute fluently. <ul style="list-style-type: none">• Understand the effects of adding and subtracting whole numbers• Develop fluency in adding and subtracting whole numbers

Even and Odd Numbers

This problem gives you the chance to:

- solve problems using even and odd numbers
-

Using only even numbers, Stephen has already made the number 8 in two different ways.

$$8 = 2 + 2 + 4$$

and

$$8 = 4 + 2 + 2$$



1. Show other ways Stephen can make the number 8. He can use only addition. He can use only **even** numbers.

$$8 = \underline{\hspace{2cm}}$$

$$8 = \underline{\hspace{2cm}}$$

$$8 = \underline{\hspace{2cm}}$$

$$8 = \underline{\hspace{2cm}}$$

2. Show how Rod can make the number 15.

He can use only addition.

He can use only **odd** numbers.



$$15 = \underline{\hspace{2cm}}$$

$$15 = \underline{\hspace{2cm}}$$

$$15 = \underline{\hspace{2cm}}$$

$$15 = \underline{\hspace{2cm}}$$

Explain why Rod needs to add more than two odd numbers to get an odd number answer.

Even and Odd Numbers		Test 3 Form A Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • solve problems using even and odd numbers <p>Based on these, credit for specific aspects of performance should be assigned as follows:</p>		Points	Section Points
<p>1. Gives four correct answers such as:</p> <p>$2 + 2 + 2 + 2$</p> <p>$4 + 4$</p> <p>$6 + 2$</p> <p>$8 + 0$</p> <p>$2 + 4 + 2$</p> <p>All four correct answers: 2 points</p> <p><i>Partial credit:</i> Three or two correct answers: 1 point</p>		2 (1)	2
<p>2. Gives four correct answers such as:</p> <p>$5 + 5 + 5$</p> <p>$3 + 3 + 3 + 3 + 3$</p> <p>$3 + 3 + 3 + 1 + 5$</p> <p>$1 + 1 + 3 + 5 + 5$</p> <p>All four correct answers: 2 points</p> <p><i>Partial credit:</i> Three or two correct answers: 1 point</p> <p>Gives correct explanation such as:</p> <p>Two odd numbers add to make an even number.</p>		2 (1) 1	3
Total Points			5

3rd grade**Task 2****Addition Trains**

Student Task	Given a sum and specific numbers, find the addends to correctly complete a number sentence.
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates and compute fluently. <ul style="list-style-type: none">• Understand the effects of adding and subtracting whole numbers• Develop fluency in adding and subtracting whole numbers• Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers.
Core Idea 3 Patterns Functions And Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships. <ul style="list-style-type: none">• Illustrate general principles and properties of operations using specific numbers

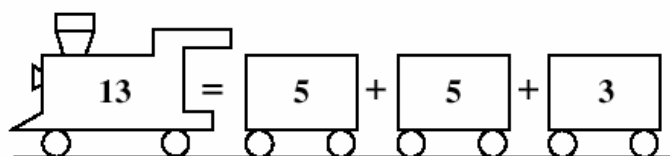
Addition Trains

This problem gives you the chance to:

- find the boxcar numbers that match the engine numbers

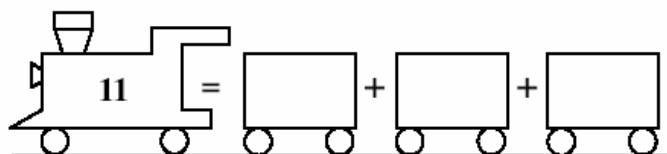
Maria is making number trains. Each train has an engine and some boxcars. Each engine and each boxcar has a number.

Each engine can pull a row of boxcars only when the numbers on the boxcars add up to the number on the engine. For example, engine number 13 can pull boxcars with numbers 5 and 5 and 3, because $13 = 5 + 5 + 3$.

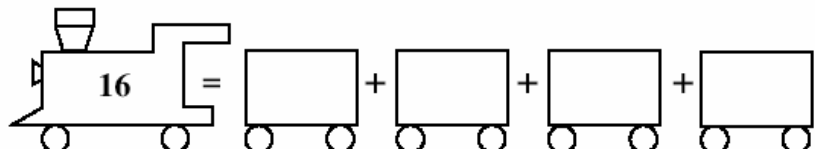


Put numbers on the boxcars so that the engines can pull them. **The number put on each boxcar must be either 3 or 5.**

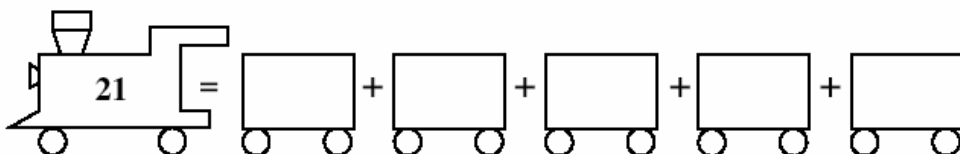
1.



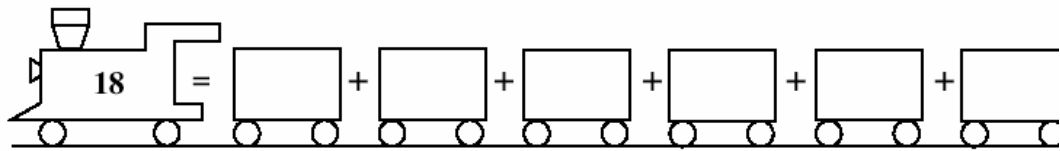
2.



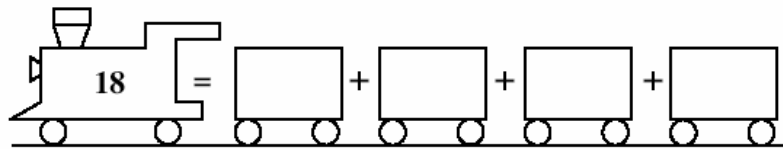
3.



4.



Find another way of filling in the boxcars for engine number 18 shown below.
Use only the numbers 3 and 5.



Addition Trains		Test 3 Form A Rubric
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> find the boxcar numbers that match the engine numbers <p>Based on these, credit for specific aspects of performance should be assigned as follows:</p>		<p>Points</p> <p>Section Points</p>
<p>1. Gives correct answer as:</p> <p>$11 = 3 + 3 + 5$ (in any order)</p>		<p>1</p> <p>1</p>
<p>2. Gives correct answer as:</p> <p>$16 = 5 + 5 + 3 + 3$ (in any order)</p>		<p>1</p> <p>1</p>
<p>3. Gives correct answer as:</p> <p>$21 = 3 + 3 + 5 + 5 + 5$ (in any order)</p>		<p>1</p> <p>1</p>
<p>4. Gives correct answers as:</p> <p>$18 = 3 + 3 + 3 + 3 + 3 + 3$ (in any order)</p> <p>$18 = 5 + 5 + 5 + 3$ (in any order)</p>		<p>1</p> <p>1</p> <p>2</p>
Total Points		5

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03mr_A03BAM***2/20/03***final cx***Arista

Third Grade 2003

Student Task	Interpret a pictograph and add additional information. Complete a chart with information provided.
Core Idea 5 Data Analysis	Collect, organize, display, and interpret data about themselves and their surroundings. <ul style="list-style-type: none">• Represent and interpret data using pictograph• Describe important features of a set of data
Core Idea 3 Patterns, Functions, and Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships. <ul style="list-style-type: none">• Show quantitative change• Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations• Model problem situations using representations such as graphs and tables to draw conclusions

Vending Machines

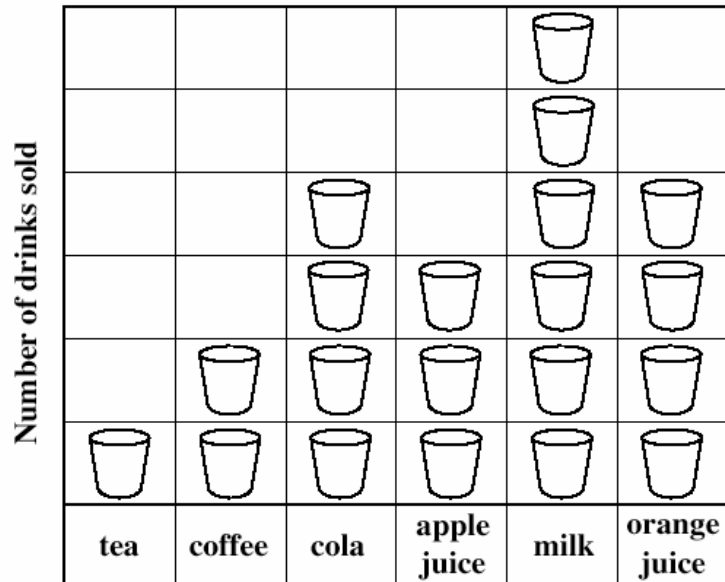
This problem gives you the chance to:

- interpret a pictograph and add information to it

A vending machine sells tea, coffee, cola, apple juice, milk, and orange juice. The chart below shows the number of drinks that have been sold in one hour.



= one drink



- How many cola drinks have been sold? _____
- Which kind of drink has sold the most? _____
- How many more cups of orange juice were sold than cups of coffee? _____
- How many drinks were sold in all?
Show how you figured this out. _____

5. On the chart, show that one more cup of apple juice has been sold.
6. Another vending machine sells chips. During one hour the machine sells:

10 bags of classic flavor

4 bags of corn flavor

7 bags of BBQ flavor


3 bags of onion flavor










8 bags of salsa flavor

5 bags of sour cream flavor

Complete the chart below to show how many bags of chips have been sold during one hour.

Use these symbols to show how many bags of chips have been sold in one hour:

 = 2 bags of chips sold  = 1 bag of chips sold

Number of bags of chips sold						
						
						
						
						
						
	classic	BBQ	salsa	corn	onion	sour cream

Vending Machines		Test 3 Form A Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> interpret a pictograph and add information to it <p>Based on these, credit for specific aspects of performance should be assigned as follows:</p>		Points	Section Points
1. Gives correct answer as:	4	1	1
2. Gives correct answer as:	milk	1	1
3. Gives correct answer as:	2	1	1
4. Gives correct answer as:	20	1	2
	<p>Gives correct explanation such as:</p> <p>I counted them all.</p> <p>or</p> <p>I added $1 + 2 + 4 + 3 + 6 + 4 = 20$.</p>	1 or 1	
5. Shows one more cup of apple juice on the chart.		1	1
6. Correctly completes the chart.	<p>All four correct answers: 4 points</p> <p><i>Partial credit:</i></p> <p>Three correct answers: 3 points</p> <p>Two correct answers: 2 points</p> <p>One correct answer: 1 point</p> <p><i>Allow a maximum of 4 points.</i></p>	4 (3) (2) (1)	4
Total Points			10

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Student Task	Name some simple geometric shapes. Use multiplication and/or division to complete given patterns and design their own repeating patterns.
Core Idea 3 Patterns, Functions, and Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships. <ul style="list-style-type: none">• Describe and extend geometric patterns• Represent and analyze patterns using words
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently. <ul style="list-style-type: none">• Understand multiplication as counting by multiples and division as forming equal groups
Core Idea 4 Geometry and Measurement	Recognize and use characteristics, properties and relationships of two-dimensional geometric shapes <ul style="list-style-type: none">• Identify and compare attributes of two-dimensional shapes and develop vocabulary to describe the attributes

Cherie's Shapes

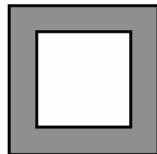
This problem gives you the chance to:

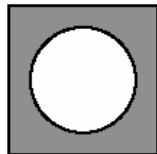
- name some simple geometric shapes
 - use divisibility to plan possible repeating patterns
-

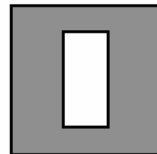
Cherie is drawing shapes around the walls of her baby brother's bedroom. Her set of shapes is shown below.

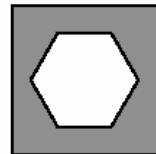
1. Name the shape in the center of each square card.











There is space for 30 shapes along each wall.

Cherie has decided to draw this pattern on the first wall:



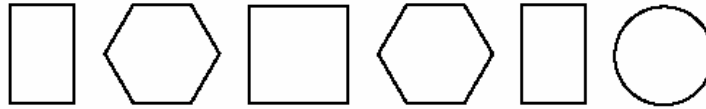
After she has drawn the pattern twice, this is how it looks:



2. How many times will Cherie be able to draw her pattern of five shapes on the wall?

Explain how you figured this out.

The new pattern is shown below.



How many times will Cherie be able to draw this pattern on the wall?
Remember that along each wall, she can draw 30 shapes.

Explain how you figured this out.

4. Using Cherie's shapes, design a different pattern for the third wall of the bedroom. Your pattern should use at least three different shapes. Remember that along each wall, there is room for 30 shapes.

Draw your pattern here.

How many times will Cherie need to draw your pattern along the wall?

Cherie's Shapes		Test 3 Form A Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • name some simple geometric shapes • use divisibility to plan possible repeating patterns <p>Based on these, credit for specific aspects of performance should be assigned as follows:</p>		Points	Section Points
<p>1. Gives correct answers as:</p> <p>triangle</p> <p>square</p> <p>circle</p> <p>rectangle</p> <p>hexagon</p> <p>All five correct answers: 2 points</p> <p><i>Partial credit:</i></p> <p>Four or three correct answers: 1 point</p>		2 (1)	2
<p>2. Gives correct answer as:</p> <p>6 times</p> <p>Gives correct explanation such as:</p> <p>6 times 5 shapes = 30 shapes</p>		1 2	3
<p>3. Gives correct answer as:</p> <p>5 times</p> <p>Gives correct explanation such as:</p> <p>5 times 6 shapes = 30 shapes</p>		1 2	3
<p>4. Designs a pattern with a number of shapes that will divide into 30.</p> <p>Correctly states how many times the pattern will be drawn.</p>		1 1	2
Total Points			10

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03mr_A03BAM***2/20/03***final cx***Arista

Third Grade – 2003

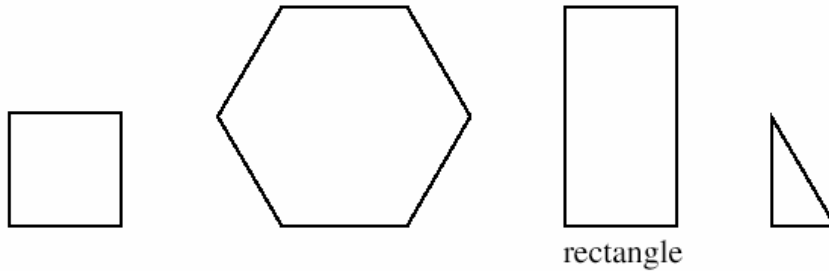
Student Task	Recognize and describe properties of simple shapes. Mark two lines of symmetry on a given design. Create a design with two lines of symmetry.
Core Idea 4 Geometry and Measurement	Recognize and use characteristics, properties, ad relationships of two-dimensional geometric shapes <ul style="list-style-type: none">• Identify and compare attributes of two-dimensional shapes and develop vocabulary to describe the attributes• Recognize geometric ideas and relationships and apply them to problems• Use visualization, spatial reasoning, and geometric modeling to solve problems.

Patchwork Quilt

This problem gives you the chance to:

- work with properties of simple shapes
 - mark lines of symmetry on a quilt pattern
-

Joella's class is making a patchwork quilt.
Each student is cutting out shapes.
The shapes they are using are shown below.



1. Anna is cutting out a shape that has 4 equal sides and 4 right angles.

What is the name of the shape?

2. Zach is cutting out a shape that has 3 sides.

What is the name of the shape?

3. Sidney is cutting out a shape that has 6 sides.

What is the name of the shape?

4. Lucy is cutting out a rectangle.

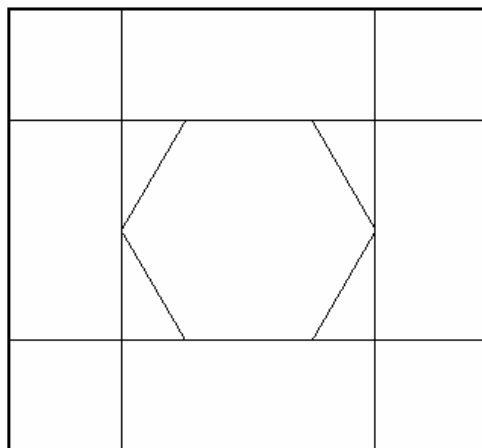
List three things that describe a rectangle.

(a) _____

(b) _____

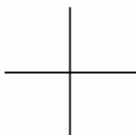
(c) _____

Draw two lines of symmetry on the design.



6. In the square below, draw your own quilt design that has two lines of symmetry.



Patchwork Quilt		Test 3 Form A Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • work with properties of simple shapes • mark lines of symmetry on a quilt pattern <p>Based on these, credit for specific aspects of performance should be assigned as follows:</p>		Points	Section Points
1. Gives correct answer as: square (<i>accept rectangle</i>)		1	1
2. Gives correct answer as: triangle		1	1
3. Gives correct answer as: hexagon		1	1
<p>4. Makes three correct statements that describe a rectangle such as:</p> <p>It has 4 sides.</p> <p>It has 4 right angles.</p> <p>Its opposite sides are equal.</p> <p>Its opposite sides are parallel.</p> <p>It has 2 lines of symmetry.</p> <p>It has a closed figure.</p> <p><i>Allow 1 point for each correct statement up to a maximum of 3 points.</i></p>		3 × 1	3
<p>5. Draws 2 lines of symmetry:</p>  <p><i>Allow 1 point for each line of symmetry drawn.</i></p>		2 × 1	2
<p>6. Draws a design that has 2 lines of symmetry.</p> <p><i>A relaxed view should be taken with respect to accuracy.</i></p>		2	2
Total Points			10

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03mr_A03BAM***2/21/03***final cx***Arista

Third Grade 2003

3rd grade**Task 1****Dave's Pocket Money**

Student Task	Find the total values for various combinations of coins taken out of a pocket.
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently. <ul style="list-style-type: none">• Develop fluency in adding whole numbers.• Solve problems involving dollars and cents
Core Idea 1 Number Properties	Understand numbers, ways of representing numbers, relationships among numbers, and number systems. <ul style="list-style-type: none">• Develop understanding of the relative magnitude of whole numbers

Dave's Pocket Money

This problem gives you the chance to:

- solve simple money problems
-



Dave's grandmother gave him some spending money.

She gave him **one** of each of these 4 coins: 1¢ 5¢ 10¢ 25¢

Dave put the four coins in his pocket.

1. Later in the day, Dave put his hand in his pocket and pulled out **3** of the coins.

What is the **largest** amount of money he could have pulled out?

Show how you figured this out.

_____ ¢

Dave put the 3 coins back in his pocket.

2. After a few minutes, Dave again put his hand in his pocket and pulled out **3** coins.

What is the **smallest** amount of money he could have pulled out?

Show how you figured this out.

_____ ¢

Dave put the 3 coins back in his pocket.

3. After a little while, Dave pulled out just 2 coins from his pocket.

Show the different amounts of money he could have pulled out.

The first one has been done for you.

$$25¢ + 10¢ = 35¢$$

Dave's Pocket Money		Test 3 Rubric	
The core elements of performance required by this task are: • solve simple money problems			
Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. Gives correct answer: 40¢ Shows $25¢ + 10¢ + 5¢$ Accept $Q + D + N$		1 1	2
2. Gives correct answer: 16¢ Shows $1¢ + 5¢ + 10¢$ Accept $P + N + D$		1 1	2
3. Gives correct answers: $25¢ + 5¢ = 30¢$ $25¢ + 1¢ = 26¢$ $10¢ + 5¢ = 15¢$ $10¢ + 1¢ = 11¢$ $5¢ + 1¢ = 6¢$ 4 or 5 answers correct: 2 points 2 or 3 answers correct: 1 point		2 (1)	2
Total Points			6

3rd grade**Task 2****Tropical Fish**

Student Task	Read and complete a frequency table and bar graph representing the same data from a tropical fish club. Interpret the data from these representations.
Core Idea 5 Data Analysis	Students collect, organize, display, and interpret data about themselves and their surroundings. <ul style="list-style-type: none">• Describe important features of a set of data• Represent data using tables and bar graphs
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently. <ul style="list-style-type: none">• Develop fluency in adding whole numbers.• Understand the effects of subtracting whole numbers.

Tropical Fish

This problem gives you the chance to:

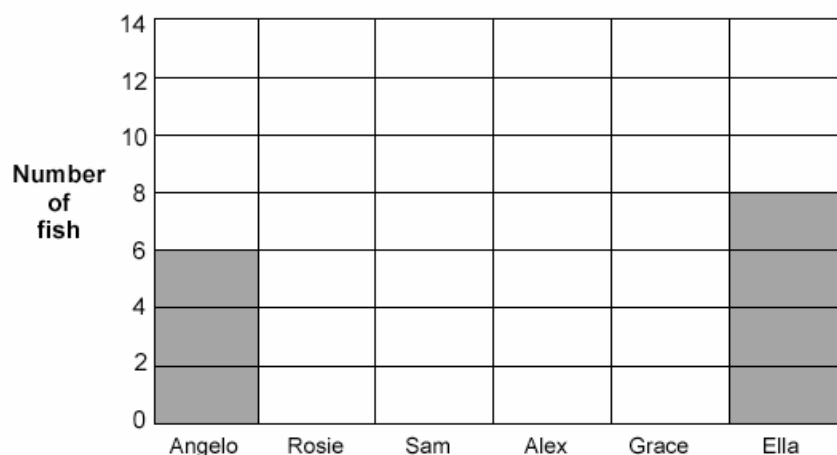
- read a frequency table and represent data using a bar chart



The students at Dale Elementary School belong to a tropical fish club. A group of students carries out a survey to see how many fish they have. Here are the survey results.

Student	Number of fish
Angelo	6
Rosie	5
Sam	10
Alex	12
Grace	11
Ella	

1. Show the survey results in the bar graph below.



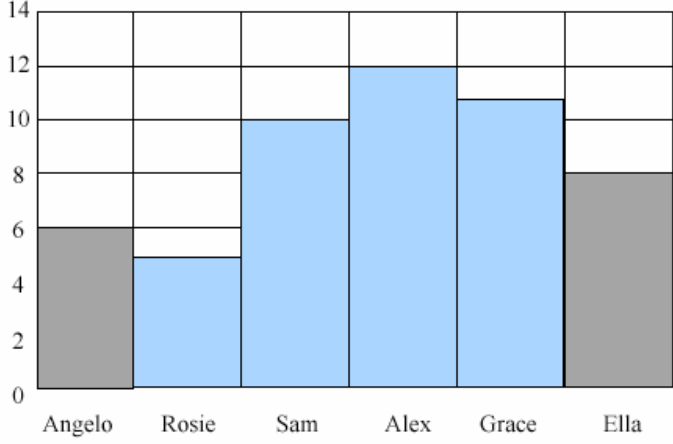
2. How many fish does Ella have?

3. How many more fish does Alex have than Rosie?

Show your work.

4. How many fish in all do these students have?

Show how you figured it out.

Tropical Fish		Test 3 Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> read a frequency table and represent data using a bar chart <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
<p>1. Draws a correct graph:</p>  <p>Rosie (5), Sam (10), Alex (12), Grace (11)</p> <p>Award 1 point for each correct new bar drawn.</p>		4 x 1	4
2. Ella has 8 fish.		1	1
3. Gives correct answer: 7		1	2
Shows work such as: $12 - 5$		1	
4. Gives correct answer: 52 Allow follow through from # 2.		1 ft	2
Shows correct work such as: $6 + 5 + 10 + 12 + 11 + 8$ or		1 ft or	
Gives correct answer and writes a comment such as: "I added them all."		1	
Total Points			9

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Student Task	Replace two symbols used in 2 different equations with the numbers that will make each equation true.
Core Idea 3 Patterns, Functions, and Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships. <ul style="list-style-type: none">• Illustrate general principles and properties of operations, such as commutativity, using specific numbers.• Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.
Core Idea 1 Number Properties	Understand numbers, ways of representing numbers, relationships among numbers, and number systems. <ul style="list-style-type: none">• Develop a sense of whole numbers and represent and use them in flexible ways including relating, composing, and decomposing numbers.

Symbols

This problem gives you the chance to:

- solve number problems in symbols



In these expressions the ☆ stands for a number and the ☾ stands for a different number.

$$\star - \text{☾} = 4$$

and

$$\star + \text{☾} = 8$$

$$6 - 2 = 4$$

and

$$6 + 2 = 8$$

So the ☆ stands for 6 and the ☾ stands for 2.

In each of the expressions below replace the symbols with just **one pair** of numbers.





You may need to try out several pairs of numbers before you find the right pair.

1. $\star + \text{✂} = 7$ and $\star \times \text{✂} = 10$





_____ + _____ = 7 and _____ × _____ = 10

2. $\text{✎} + \text{♣} = 10$ and $\text{✎} - \text{♣} = 4$





_____ + _____ = 10 and _____ - _____ = 4

3.  +  = 7 and  x  = 12

_____ + _____ = 7 and _____ x _____ = 12

4.  +  = 10 and  ÷  = 4

_____ + _____ = 10 and _____ ÷ _____ = 4

5.  ÷  = 3 and  -  = 6

_____ ÷ _____ = 3 and _____ - _____ = 6

Symbols		Test 3 Rubric	
The core elements of performance required by this task are: • solve number problems in symbols			
Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. In all questions both numbers must be correct. Gives correct answers: 2 and 5 or 5 and 2 <i>Partial credit</i> Award 1 point if the correct numbers do not map on to the same symbol.		2 (1)	2
2. Gives correct answers: 7 and 3 <i>Partial credit</i> Award 1 point if the correct numbers do not map on to the same symbol.		2 (1)	2
3. Gives correct answers: 3 and 4 or 4 and 3 <i>Partial credit</i> Award 1 point if the correct numbers do not map on to the same symbol.		2 (1)	2
4. Gives correct answers: 8 and 2 <i>Partial credit</i> Award 1 point if the correct numbers do not map on to the same symbol.		2 (1)	2
5. Gives correct answers: 9 and 3		2	2
Total Points			10

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Student Task	Find the number of plant pots that will fit in a given box size. Find a box size that will fit 12 pots with a given diameter. Show and explain your thinking.
Core Idea 4 Geometry and Measurement	Recognize and use characteristics, properties, and relationships of two-dimensional geometric shapes and apply appropriate techniques to determine measurements. <ul style="list-style-type: none">• Calculate area• Use visualization, spatial reasoning, and geometric modeling to solve problems.
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently. <ul style="list-style-type: none">• Understand multiplication as repeated addition, an area model, an array, and an operation on scale

Boxing the Pots

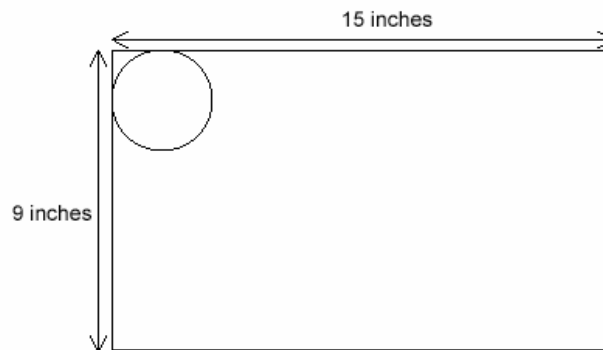
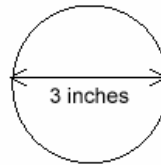
This problem gives you the chance to:

- select and use operations in a real life situation
- use customary units of measurement

At the garden center, Mr. Garcia is putting plant pots into boxes ready to take to market.

The diameter of each plant pot is 3 inches.

Each box measures 9 inches by 15 inches



1. How many pots can Mr. Garcia arrange along the side of the box that measures 15 inches?

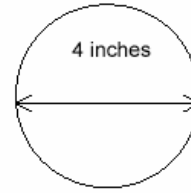
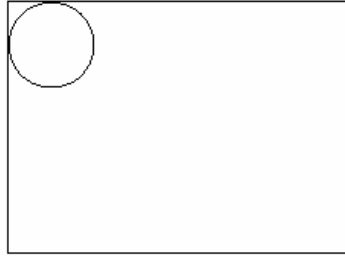
2. How many pots can Mr. Garcia arrange along the side of the box that measures 9 inches?

3. How many pots will the box hold?

Show how you figured this out.

4. Mr. Garcia has 12 pots that are 4 inches in diameter.

They can fit exactly into a different box.



What do you think are the measurements of this box?

Length _____ inches

Width _____ inches

Explain how you figured this out.

Boxing the Pots		Test 3 Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • select and use operations in a real life situation • use customary units of measurement <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1. Gives correct answer: 5		1	1
2. Gives correct answer: 3		1	1
3. Gives correct answer: 15 Shows 5 x 3. Accept repeated addition. or Draws a diagram showing pots correctly placed in box.		1 ft 1 ft or 1 ft	2
4. Gives correct answers: Length = 16 inches or 24 inches or 48 inches Width = 12 inches or 8 inches or 4 inches Explains the shape of the array. e.g., 4 x 3 pots or 6 x 2 pots or 12 x 1 pot. Shows how you calculate at least one of the dimensions of the array.		1 1 1 1	4
Total Points			8

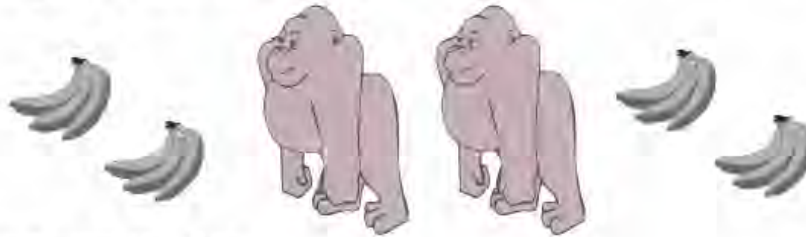
Student Task	Read a story about a teacher and 2 gorillas. Solve problems that can require using any of the four operations (addition, subtraction, multiplication or division).
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently. <ul style="list-style-type: none">• Understand multiplication as repeated addition, an area model, an array, and an operation on scale.
Core Idea 3 Patterns, Functions, and Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships. <ul style="list-style-type: none">• Model problem situations with objects and use representations.• Solve simple problems involving a function relationship (two quantities which vary together).

A Silly Story

This problem gives you the chance to:

- recognize and use multiplication
-

Two 3rd grade students were walking to school one day when they saw their teacher walking hand in hand with two gorillas.



1. Each gorilla had **5 bags**.

How many bags were there in all?

2. In each bag there were **2 bunches** of bananas.

How many bunches of bananas were there in all?

Show your calculation.

3. There were **3 bananas** in each bunch.

How many bananas were there in all?

Explain how you figured it out.

4. Each gorilla ate a bunch of bananas.

How many bananas did each gorilla have left?

Show your work.

A Silly Story		Test 3 Rubric	
The core elements of performance required by this task are: • recognize and use multiplication Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: 10	1	1
2.	Gives correct answer: 20 Shows 10 x 2.	1 ft 1 ft	2
3.	Gives correct answer: 60 Gives a correct explanation such as: The number of bags is 2 gorillas x 5 bags = 10 The number of bunches is 10 bags x 2 bunches = 20 The number of bananas is 20 bunches x 3 bananas.	1 ft 1 ft	2
4.	Gives correct answer: 27 Shows work such as: $(60 \div 2) - 3$ <i>Special case</i> Gives answer 54 and shows work $60 - 6$	1 ft 1 ft 1 sc	2
Total Points			7

3rd grade**Task 1****Television Time**

Student Task	Read a graph and answer questions concerning the amount of time a child spends watching television on a Saturday.
Core Idea 5 Data Analysis	Collect, organize, display, and interpret data about themselves and their surroundings <ul style="list-style-type: none">• Identify important features of a set of data• Compare data using quantitative measures• Communicate reasoning using numbers, pictures and/or words
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently <ul style="list-style-type: none">• Understand different meanings of addition• Communicate reasoning using numbers, pictures and/or words

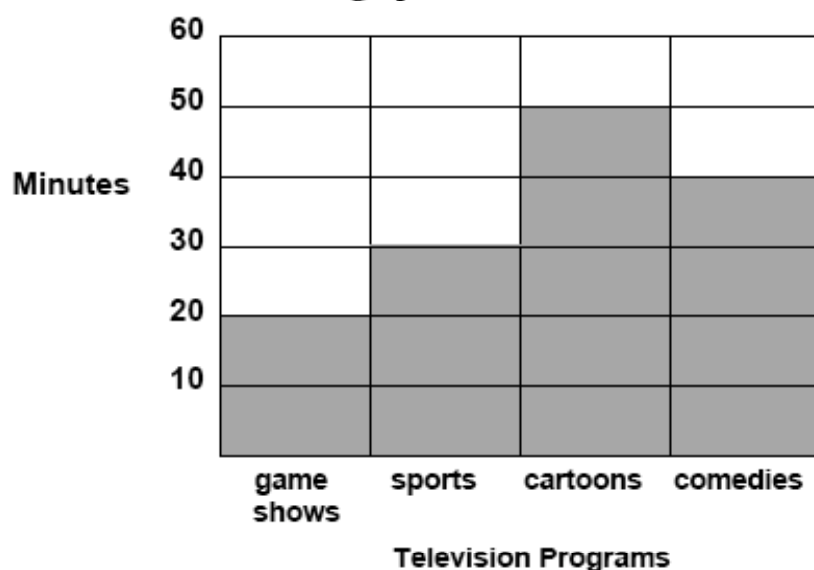
Television Time

This problem gives you the chance to:

- look at a graph and determine what it shows
-



Terrie loves television. This graph shows how much she watches on Saturday.



1. Which is Terrie's favorite kind of program? _____
2. How many minutes of sports does Terrie watch? _____
3. How much longer does she spend watching comedies than game shows?

4. How much time, in all, does Terrie watch television on Saturday?

Show how you figured this out.

Television Time		Grade 3		Rubric	
The core elements of performance required by this task are:					
<ul style="list-style-type: none"> to look at a graph and determine what it shows about the questions 					
Based on these, credit for specific aspects of performance should be assigned as follows		points		section points	
1.	Gives correct answer: cartoons	1		1	
2.	Gives correct answer: 30 minutes	1		1	
3.	Gives correct answer: 20 minutes	1		1	
4.	Gives correct answer: 140 minutes (accept 2 hours 20 minutes)	1			
	Gives correct explanation such as: 20 + 30 + 50 + 40 =	1			
	or I added them all together (with the correct answer)			2	
Total Points				5	

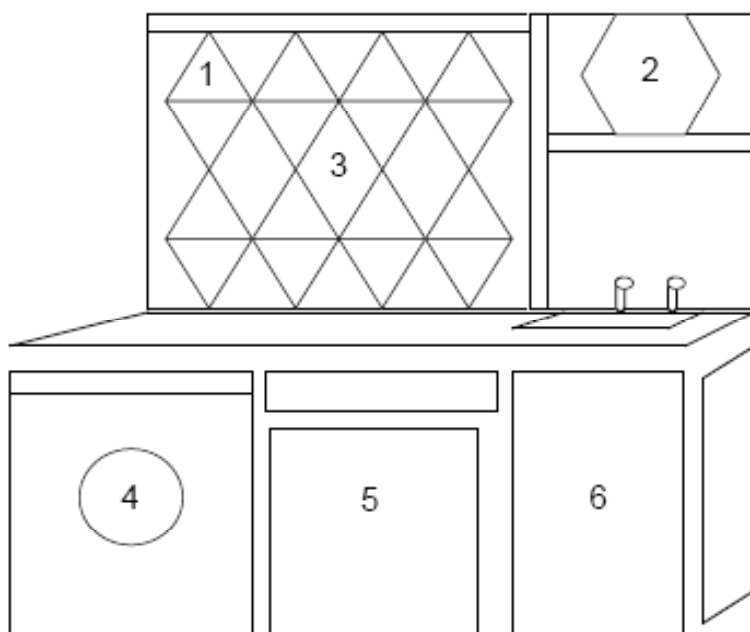
Student Task	Name and create two-dimensional shapes that might appear in a kitchen. Recognize a floor tile as it is flipped and turned as part of a design.
Core Idea 4 Geometry and Measurement	Recognize and use characteristics, properties, and relationships of two-dimensional geometric shapes and apply appropriate techniques to determine measurements <ul style="list-style-type: none">• Recognize geometric ideas and relationships and apply them to problems• Identify and compare attributes of two-dimensional shapes• Use visualization, spatial reasoning, and geometric modeling to solve problems

Katie's Kitchen

This problem gives you the chance to:

- name and create two dimensional shapes
 - recognize flips and turns
-

Here is a picture of Katie's kitchen.



Name the numbered shapes.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Katie would like to have some handles on her kitchen drawers.

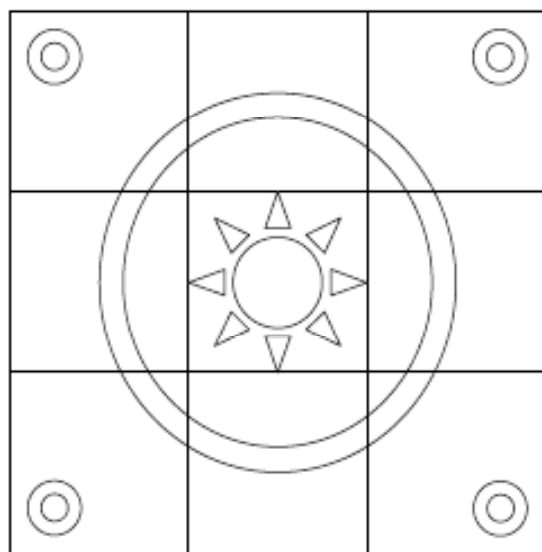
She wants either pentagon shapes or octagons.

In the space below, draw one of each of these shapes to help Katie decide which she should choose.

7. **Pentagon**

8. **Octagon**

9. Here is a design that Katie is going to use on the floor of her kitchen.
The design has been made using 9 tiles.

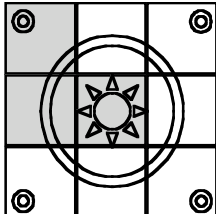


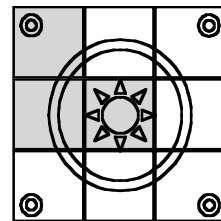
How many **different** tiles make up this design? _____

Remember you can turn the tiles around.

Shade in just **one of each** of the different tiles.

9

Katie's Kitchen		Grade 3		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none">• name and create two dimensional shapes• recognize flips and turns					
Based on these, credit for specific aspects of performance should be assigned as follows				points	section points
1.	Gives correct answer: triangle			3	3
2.	Gives correct answer: hexagon				
3.	Gives correct answer: rhombus (accept quadrilateral or parallelogram)				
4.	Gives correct answer: circle				
5.	Gives correct answer: square (accept rectangle)				
6.	Gives correct answer: rectangle				
	6 correct answers				
	<i>Partial credit</i>				
	5 or 4 correct answers			(2)	
	3 or 2 correct answers			(1)	
7.	Draws a pentagon (a shape with 5 sides)			1	1
8.	Draws an octagon (a shape with 8 sides)			1	1
9.	Gives correct answer: 3 different tile patterns			1	4
	Shades in one of each of the three squares shown in diagram with no extras.			3	
					
	<i>Partial credit</i>				
	Shades in two correct squares with no extras.			(2)	
	Shades in one correct square with no extras.			(1)	
	Shades in correct squares with extras: minus one point for each extra				
	Total Points				9



3rd grade**Task 3****Number Cards**

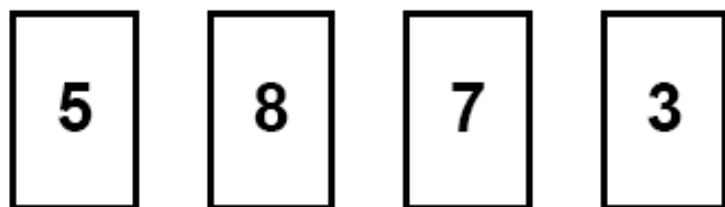
Student Task	Given different sets of four number cards, find three- and four-digit numbers given certain constraints and be able to explain how to find the largest four-digit even number.
Core Idea 1 Number Properties	Understand numbers, ways of representing numbers, relationships among numbers, and number systems <ul style="list-style-type: none">• Develop understanding of the relative magnitude of whole numbers and the concepts of sequence, quantity, and the relative positions of numbers• Understand the place-value structure of the base-ten number system including being able to represent and compare whole numbers
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently <ul style="list-style-type: none">• Understand the effects of adding and subtracting whole numbers• Communicate reasoning using numbers, pictures and/or words

Number Cards

This problem gives you the chance to:

- show understanding of whole numbers

George has four number cards.



1. What is the largest four-digit number George can make with his cards?

Four empty rectangular boxes are arranged horizontally, intended for the student to write the digits of the largest four-digit number they can form.

2. a. What is the largest **even** number George can make using all four cards?

Four empty rectangular boxes are arranged horizontally, intended for the student to write the digits of the largest even number they can form using all four cards.

- b. Explain to George how he can make the largest possible even number using his four number cards.

3. a. What is the four-digit number closest to 4000 that George can make using his four cards?

--	--	--	--

- b. Show your work.

4. a. Complete this calculation:

$$5738 + \begin{array}{|c|} \hline \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} = 6000$$

- b. Show how you figured it out.

Number Cards		Grade 3		Rubric	
The core elements of performance required by this task are: • show understanding of whole numbers					
Based on these, credit for specific aspects of performance should be assigned as follows				points	section points
1. Gives correct answer: 8753				1	1
2. a. Gives correct answer: 7538				1	3
b. Gives a correct explanation such as: 8 is the only even number, so write it at the end in the units column. Write the biggest number (7) in the thousands position, the next biggest (5) in the hundreds position and the smallest (3) in the tens position.				1	
				1	
3. a. Gives correct answer: 3875				1	3
b. Shows work such as: 5378 – 4000 = 1378 and 4000 – 3875 = 125				2	
<i>Partial credit</i> Considers only 3875 and gives reasons for arranging the digits in that order.				(1)	
4. a. Gives correct answer: 262				1	2
b. Shows work such as: 6000 – 5738 = 262				1	
Total Points					9

3rd grade**Task 4****Sponsored Walk**

Student Task	Calculate the money that students will raise as they participate in a sponsored walk. Find and explain how far a student must walk to earn at least \$20.
Core Idea 2 Number Operations	Understand the meanings of operations and how they relate to each other, make reasonable estimates, and compute fluently <ul style="list-style-type: none">• Understand the meaning of multiplication as repeated addition, make reasonable estimates and compute fluently• Develop and use strategies to estimate and judge the reasonableness of results• Communicate reasoning using numbers, pictures and/or words

Sponsored Walk

This problem gives you the chance to:

- choose and use number operations in a real context
-



Students at the Mountain View Elementary School do a sponsored walk.

1. Jack is sponsored for \$6 for each lap.

Bill is sponsored for \$4 for each lap.

Jack and Bill each do 5 laps.

How much money do Jack and Bill raise in all? \$ _____

Show your work.

2. Maria does 6 laps.

She raises \$30.

How much for each lap was she sponsored? \$ _____

Show how you figured it out.

3. Sarah wants to raise at least \$20.

She is sponsored for \$3 for each lap.

What is the least number of whole laps she must walk? _____

Explain how you figured it out.

Sponsored Walk Grade 3		Rubric
The core elements of performance required by this task are: • choose and use number operations in a real context Based on these, credit for specific aspects of performance should be assigned as follows		
	points	section points
1. Gives correct answer: \$50 Shows work such as: $6 + 4$ or $5 \times 6 = 30$ $= 10$ $5 \times 4 = 20$ $10 \times 5 =$ $30 + 20 =$ Accept repeated addition	1 1 1 1ft	4
2. Gives correct answer: \$5 Shows work such as: $\$30 \div 6 =$ Accept repeated addition/subtraction	1 1	2
3. Gives correct answer: 7 Gives a correct explanation such as: If she walks 6 laps she will raise $6 \times \$3 = \18 , so she will have to walk another lap to raise at least \$20. <i>Partial credit</i> See work such as: $20 \div 3 = 6$ or $6 \times 3 = 18$	1 2 (1)	3
Total Points		9

3rd grade**Task 5****Teddy Bears**

Student Task	Analyze and describe how Kate makes teddy bears using two eyes, a nose, and three buttons.
Core Idea 3 Patterns, Functions, and Algebra	Understand patterns and use mathematical models to represent and to understand qualitative and quantitative relationships <ul style="list-style-type: none">• Describe and extend numeric patterns• Represent and analyze patterns using words and tables• Solve simple problems involving a functional relationship• Communicate reasoning using numbers, pictures and/or words

Teddy Bears

This problem gives you the chance to:

- find and use number patterns

Kate makes teddy bears.

Each bear needs

- 2 eyes
- 1 nose
- 3 buttons



1. Fill in the missing numbers in this table.

Number of teddy bears	Number of eyes	Number of noses	Number of buttons
1	2	1	3
2	4		6
5		5	15
10	20	10	
	24		

2. Kate has 26 teddy bear eyes, 11 noses and 24 buttons.

How many teddy bears can she make? _____

Explain how you decided.

Teddy Bears		Grade 3		Rubric																									
The core elements of performance required by this task are: <ul style="list-style-type: none">find and use number patterns				points	section points																								
Based on these, credit for specific aspects of performance should be assigned as follows																													
1. Gives correct answers: <table border="1"><thead><tr><th>Number of teddy bears</th><th>Number of eyes</th><th>Number of noses</th><th>Number of buttons</th></tr></thead><tbody><tr><td>1</td><td>2</td><td>1</td><td>3</td></tr><tr><td>2</td><td>4</td><td>2</td><td>6</td></tr><tr><td>5</td><td>10</td><td>5</td><td>15</td></tr><tr><td>10</td><td>20</td><td>10</td><td>30</td></tr><tr><td>12</td><td>24</td><td>12</td><td>36</td></tr></tbody></table> <p>All 6 values correct</p> <p>Allow 1 point for each correct value.</p>				Number of teddy bears	Number of eyes	Number of noses	Number of buttons	1	2	1	3	2	4	2	6	5	10	5	15	10	20	10	30	12	24	12	36	6x1	6
Number of teddy bears	Number of eyes	Number of noses	Number of buttons																										
1	2	1	3																										
2	4	2	6																										
5	10	5	15																										
10	20	10	30																										
12	24	12	36																										
2. Gives correct answer: 8 teddy bears																													
Gives a correct explanation such as: 26 eyes make 13 bears, 11 noses make 11 bears, 24 buttons make 8 bears.				1																									
				1	2																								
Total Points					8																								

Core Idea	Task Score
Data Analysis	Flower Garden
The task asks students to read, interpret, and draw conclusions from information on a bar graph representing data about flowers in a garden. Successful students can record data on a graph and compare values. They can use addition to find total values on a graph.	
Patterns, Functions and Algebra	Houses in a Row
The task asks students to find and extend a pattern about toothpicks are needed to make a geometric design. Successful students can recognize and extend a visual geometric pattern, reason about constant growth and extend the pattern forward. Successful students can also use inverse operations to think backwards from a total to where that total would fit in the pattern.	
Number Operations	The Answer is 36
The task asks students to work with number calculations to get the answer 36. Successful students think about missing numbers in addition, subtraction, and multiplication situations. They can use regrouping for addition and subtraction with accuracy and reason about place value.	
Number Operations	Pens and Pencils
The task asks students to calculate buying groups of objects and to find change. Successful students can use addition or multiplication to find the cost of buying groups of an item. They can use decimals and convert easily from cents to dollar notation. They can use subtraction to find change.	
Geometry and Measurement	Garden Design
The task asks students to find the area of shapes on a grid, compare areas, and design a new shape with a given area. Successful students count to find area on a grid, know to quantify the value of all shapes before making a comparison, and design a shape to fit the given constraints about area.	

The Flower Garden

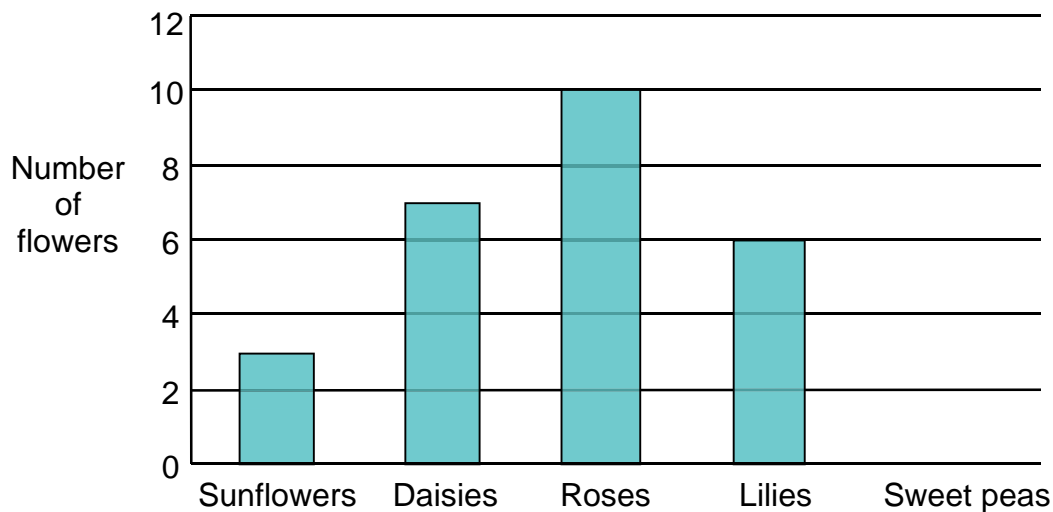
This problem gives you the chance to:

- represent data using a bar graph
 - draw conclusions from the data
-

Cameron grows flowers in his garden.

He grows sunflowers, daisies, roses, lilies and sweet peas.

Cameron draws a bar graph to show how many flowers are in his garden today.



1. How many sunflowers are there in Cameron's garden today? _____
2. How many more roses are there than sunflowers?
Show your work. _____
3. On Cameron's bar graph, show that there are 8 sweet peas in his garden today.
4. Cameron waters all the daisies, roses and lilies.
How many flowers does he water in all? _____
Show how you figured this out.
5. Cameron picks the flowers he has most of to give to his granny.
Which flowers does he pick? _____

MAC Rubrics 2006 Test 3

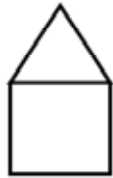
The Flower Garden		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> • represent data using a bar graph • draw conclusions from the data Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: 3	1	1
2.	Gives correct answer: 7 Shows correct work such as: $10 - 3$	1ft 1	2
3.	Draws correct bar on graph for 8 sweet peas	1	1
4.	Gives correct answer: 23 Shows correct work such as: $7 + 10 + 6$	1 2	3
5.	Gives correct answer: roses	1	1
Total Points			8

Houses in a Row

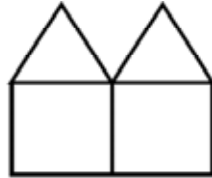
This problem gives you the chance to:

- find a pattern in a sequence of diagrams
- use the pattern to make a prediction

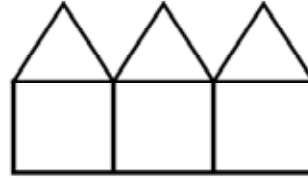
Lindsay uses toothpicks to make houses in a row.



1 house
6 toothpicks



2 houses
11 toothpicks



3 houses
16 toothpicks

Six toothpicks make one house, eleven toothpicks make two houses, and sixteen toothpicks make three houses.

1. Draw a diagram to show four houses in a row.
2. Lindsay makes a table to show the number of toothpicks needed to make different numbers of houses in a row.

Number of houses	1	2	3	4	5	6
Number of toothpicks	6	11	16			

How many toothpicks are needed to make four houses in a row?

Write your answer in Lindsay's table.

3. How many toothpicks are needed to make six houses in a row? _____

Explain how you figured it out.

4. Lindsay has 41 toothpicks.

How many houses in a row can she make? _____

Explain how you figured it out.

5. Lindsay says, “*I need 55 toothpicks to make 11 houses in a row.*”

Lindsay is wrong. Explain why she is wrong.

How many toothpicks does Lindsay need to make 11 houses in a row?

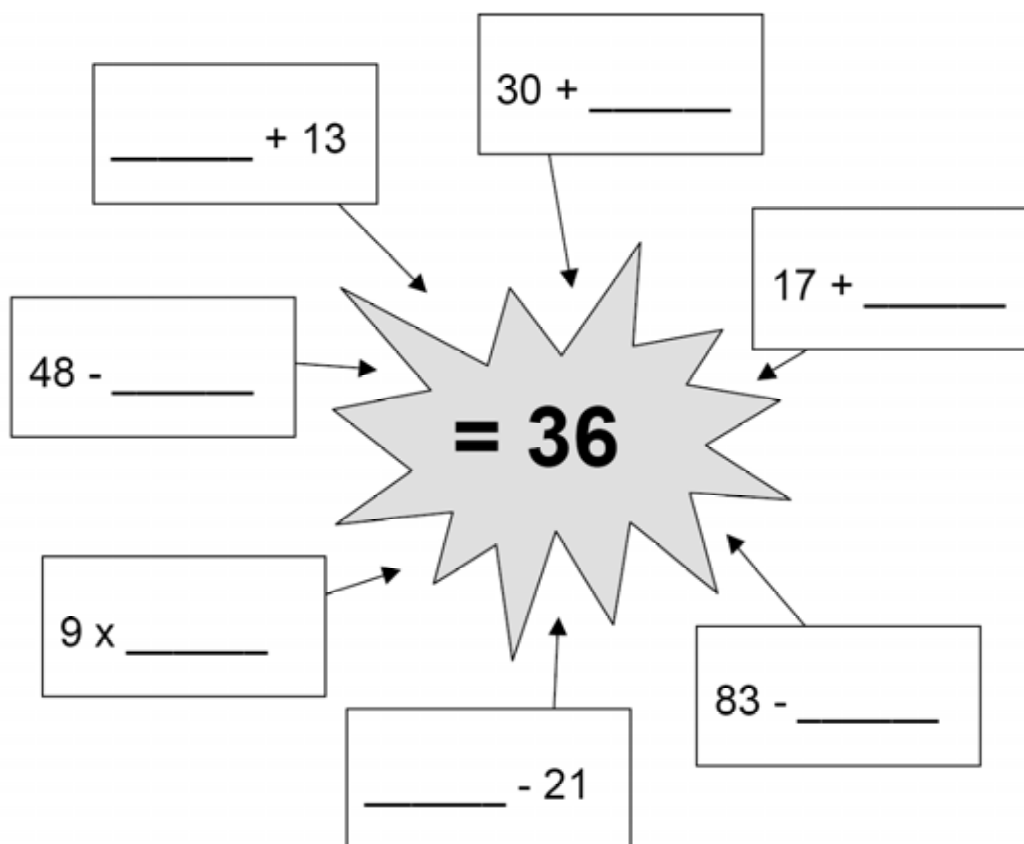
Houses in a Row		Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • find a pattern in a sequence of diagrams • use the pattern to make a prediction <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1.	Draws a correct diagram showing 4 houses in a row.	1	1
2.	Gives correct answer: 21	1	1
3.	<p>Gives correct answer: 31</p> <p>Draws a correct diagram or gives a correct explanation such as: The numbers go up by 5s, so I added 10 to 21.</p>	1 1	2
4.	<p>Gives correct answer: 8</p> <p>Gives a correct explanation such as: Counts on from 6 houses need 31 toothpicks, 7 houses need 36 toothpicks, 8 houses need 41 toothpicks.</p> <p>Draws a correct diagram or gives a correct explanation such as: The first house needs 6 toothpicks. Each extra house needs 5 toothpicks. $41 - 6 = 35$, $35 \div 5 = 7$, $1 + 7 = 8$</p>	1 1	2
5.	<p>Gives a correct explanation such as: The first house needs 6 toothpicks. Each extra house needs 5 toothpicks. $6 + 5 \times 10 = 56$</p> <p>or</p> <p>The number of toothpicks shows a repeating pattern of 1 and 6 on the units digits.</p> <p>Gives correct answer: 56</p>	1 or 1 1	2
Total Points			8

The Answer is 36

This problem gives you the chance to:

- work with number calculations to get the answer 36
-

1. Fill in the missing numbers so that the answer is **always 36**.



2. Fill in the gaps below to make the answer 36.

You may use these signs: $+$ $-$

$$47 \underline{\hspace{1cm}} 35 \underline{\hspace{1cm}} 24 = 36$$

The Answer is 36		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> • work with number calculations to get the answer 36 • Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. Gives correct answers, start top right in a clockwise direction: 6 19 47 57 4 12 23		7 x 1	7
2. Gives correct answers: - and +		2	2
Total Points			9

Grade Three – 2006

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Pens and Pencils

This problem gives you the chance to:

- choose and use number operations in a real context
-



Jane has \$10 to spend. She buys five pens and five pencils.

Each pen costs \$1.30.

Each pencil costs 45¢.

1. How much does she spend altogether? \$ _____

Explain how you figured it out.

2. How much money does she have left? \$ _____

Show your work.


Garden Design

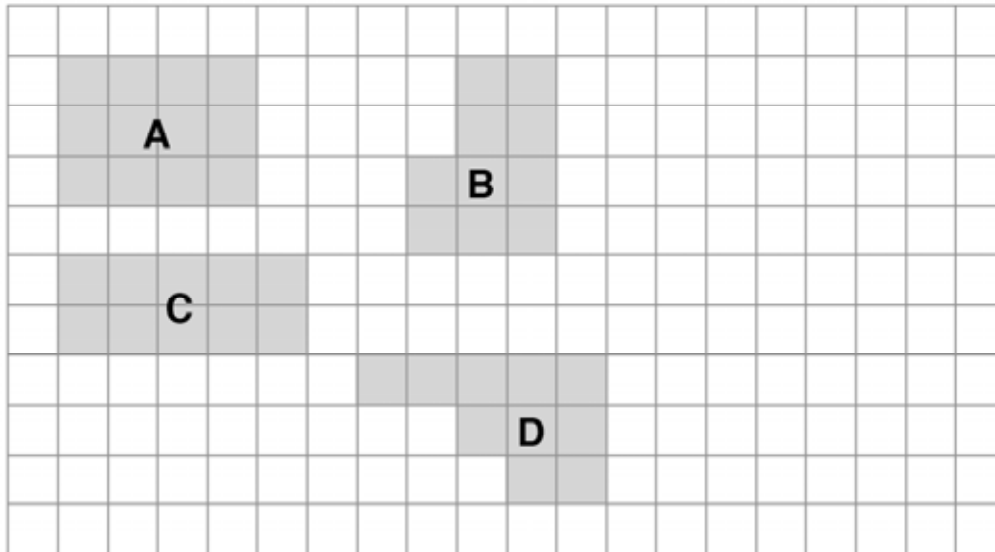
This problem gives you the chance to:

- compare areas of shapes on a grid
- draw a shape with given area

Here is a plan of Martin's garden.

The shaded areas show where he plants flowers.

Scale:  = 1 square unit



1. What is the area of shape A? _____ square units

2. Which shape has the largest area? _____

Explain how you figured it out.

3. On the diagram above, draw a different shape that has the same area as shape A.

Label your shape **E**.

7

Garden Design		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> • compare areas of shapes on a grid • draw a shape with given area Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: 12 square units	1	1
2.	Gives correct answer: A Explains that the area of B = 10, the area of C = 10, the area of D = 10, so the area of A is the largest.	1 3x1	4
3.	Draws a different shape with area 12 square units, and labels it E. <i>Partial credit</i> Draws a rotation of shape A.	2 (1)	2
Total Points			7

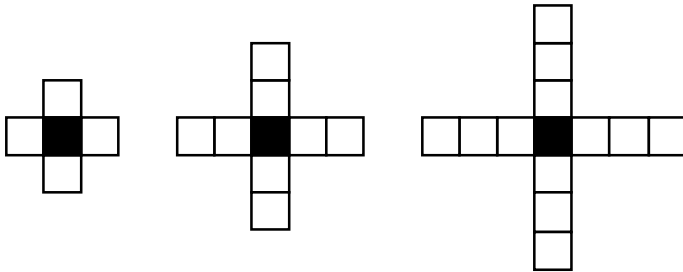
Core Idea	Task
Algebra	Square Patterns
This task asks students to identify and extend a pattern. They describe physical attributes of a geometric pattern. Students need to justify how to extend the pattern. Successful students can use inverse operations to solve a problem about patterns.	
Data Analysis	Parking Cars
The task asks students to represent data using a bar graph and draw conclusions from the data. Students need to interpret a scale going up by 10's and then use information on a graph to find totals and make comparisons. Successful students can add 15 cars to the graph using the appropriate scale.	
Number Operations	Adding Numbers
The task asks students to work with number calculations to verify whether given calculations will or will not total 113. Students needed to understand doubling, and addition and subtraction of two- and three- digit numbers. Successful students were able to identify a variety of strategies, which could be used to accurately add two-digit numbers.	
Geometry and Measurement	Which Shape?
The task asks students to identify shapes given a set of attributes, to write attribute clues for a shape, and to compare and contrast shapes based on their attributes. Students should understand attributes about side length, parallel sides, right angles, number of sides, and number of angles. Successful students could divide shapes into rectangles and right triangles and use geometric vocabulary to describe how shapes are alike and different.	
Number Properties	A Question of Numbers
The task asks students to compare and order numbers and place them on a number line. Students were also asked to locate numbers on a number line with values between two given numbers. Successful students could subtract numbers from 1000.	

Square Patterns

This problem gives you the chance to:

- find and use a pattern
-

Tom makes patterns using black squares and white squares.



Shape #1

1 black
4 white

Shape #2

1 black
8 white

Shape #3

1 black
12 white

1. Describe Shape #4.

Tom makes a table to show the number of black squares and white squares he needs to make different shapes.

Shape #	1	2	3	4	5
Number of black squares	1	1	1		
Number of white squares	4	8	12		

2. How many black squares and white squares does Tom need to make Shape #4?
Write your answers in the table above.

3. How many black squares and white squares does Tom need to make Shape #5? Write your answers in the table.

Explain how you figured it out.

4. Tom makes a pattern using 33 black squares and white squares in all. Which Shape # does he make? _____

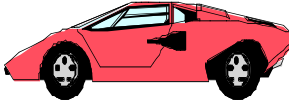
Show how you figured it out.

Task 1: Square Patterns		Rubric	
<ul style="list-style-type: none"> The core elements of performance required by this task are: find and use a pattern <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
<p>1. Gives a correct description of Shape# 4 such as:</p> <p>It has one black square.</p> <p>It has 4 white squares on each arm.</p> <p>or The total number of white squares is 16.</p> <p><i>Partial credit</i></p> <p>Draws correct diagram.</p>		1 1 (1)	2
<p>2. Gives correct answers: 1 16</p>		1	1
<p>3. Gives correct answers: 1 20</p> <p>Gives a correct explanation such as:</p> <p>The number of white squares increases in fours.</p> <p>or Draws a correct diagram.</p>		1 1	2
<p>4. Gives correct answer: 8</p> <p>Shows correct work such as:</p> <p>$33 - 1 = 32$ and $32 \div 4 = 8$</p> <p>or</p> <p>Counts on from, say 5 squares.</p> <p>$21 + 4 + 4 + 4 = 3$</p> <p>Accept alternative correct calculations.</p> <p>or Draws a correct diagram.</p>		1 1	2
Total Points			7

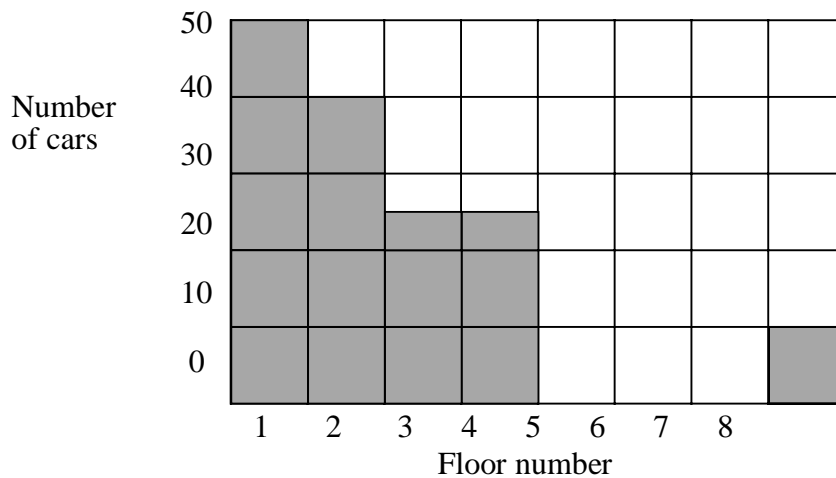
Parking Cars

This problem gives you the chance to:

- interpret a bar graph
-



This bar chart shows the number of cars parked in the multi-level parking garage at a shopping center today. Each floor holds up to 50 cars.



1. On which floor are the most cars parked? _____

How many cars are there on this floor? _____

2. On which two floors are the same number of cars parked?

Floors _____ and _____

3. How many more cars are parked on Floor 1 than on Floor 8? _____

4. How many cars, in all, are parked on the parking garage?
Show how you figured this out.

5. Fifteen more cars come into the parking garage.
Show these cars on the graph, parking them in the lowest floors.

Explain why you parked these cars in this way.

7

Task 2: Parking Cars		Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> interpret a bar chart <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1.	Gives correct answers: Floor 1 and 50	1	1
2.	Gives correct answer: 3 and 4	1	1
3	Gives correct answer: 40	1	1
4.	Gives correct answer: 150 Shows work such as: $50 + 40 + 25 + 25 + 10 = 150$ Accept “I counted them” if student has given 150.	1 1	2
5.	Draws 15 more cars on the block graph. 10 cars on Floor number 2 and 5 cars on Floor number 3. Gives a correct reason for their positioning. <i>Partial credit</i> Places 15 cars in garage.	1 1 (1)	2
Total Points			7

Adding Numbers

This problem gives you the chance to:

- work with different methods of adding
-

There are many different ways to add numbers.

Here is one way to add the numbers 55 and 58.

$$\begin{array}{r} 55 \\ + 58 \\ \hline 113 \end{array}$$

1. Below are some different ways of adding 55 and 58.

Most are correct but some are wrong!

If you think that a statement is correct, draw a ring around the word Correct.

If you think that a statement is wrong draw a ring around the word Wrong

Under each statement show why you think that it is correct or wrong.

- a. Double 50 then add 8 then add 5.

Correct

Wrong

- b. Start with 58 then add 50 then add 5.

Correct

Wrong

c. Double 58 then subtract 3.

Correct

Wrong

d. Start with 55 then add 60 then subtract 2.

Correct

Wrong

e. Add 5 and 8 then add 100.

Correct

Wrong

f. Add 50 and 60 then subtract 5 and subtract 2.

Correct

Wrong

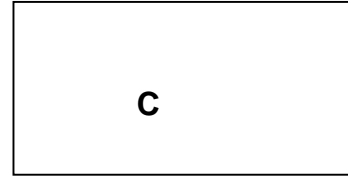
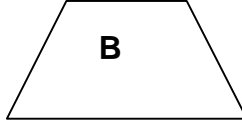
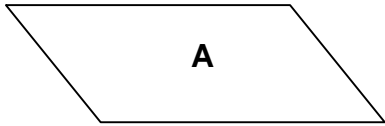
Task 3: Adding Numbers		Rubric	
The core elements of performance required by this task are: • work with different methods of adding Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
a	Rings correct answer: Correct Shows calculation such as: $50 + 50 = 100$ $100 + 8 + 5 = 113$	1	
b	Rings correct answer: Correct Shows calculation such as: $58 + 50 = 108$ $108 + 5 = 113$	1	
c	Rings correct answer: Wrong and Shows calculation such as: $55 + 55 = 110$ $110 + 8 = 118$ Gives correct answer such as: Only 3 should be added, not 8.	2	
d	Rings correct answer: Correct Shows calculation such as: $58 + 58 = 116$ $116 - 3 = 113$	1	
e	Rings correct answer: Correct Shows calculation such as: $55 + 60 = 115$ $115 - 2 = 113$	1	
f	Rings correct answer: Correct Shows calculation such as: $5 + 8 = 13$ $13 + 100 = 113$	1	
g	Rings correct answer: Wrong and Shows calculation such as: $50 + 60 = 110$ $110 - 5 - 2 = 103$	2	
Total Points			9

Which Shape?

This problem gives you the chance to:

- identify and describe shapes
 - use clues to solve riddles
-

Use shapes A, B, or C to solve the riddles.



1. I have 4 sides.

My opposite sides are equal.

I have 4 right angles.

Which shape am I?

2. I have 4 sides.

I have only 1 pair of parallel sides.

Which shape am I?

3. I have 4 sides.

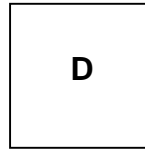
My opposite sides are parallel.

I do not have any right angles.

- a. Which shape am I?

- b. Draw lines that divide my shape into a rectangle and two right triangles.

4. Write three different clues for shape D.

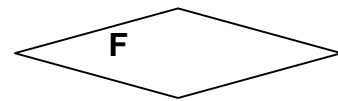
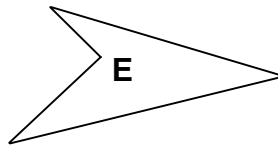


Clue 1:

Clue 2:

Clue 3:

5. Look closely at shapes E and F.



Write a statement that tells how they are alike.

Write a statement that tells how they are different.

Task 4: Which Shape?		Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • identify and describe shapes • use clues to solve riddles <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1.	Gives correct answer: C or rectangle	1	1
2.	Gives correct answer: B or trapezoid	1	1
3.	Gives correct answer: A or parallelogram Draws lines that are correct.	1 1ft	2
4.	Gives three correct statements such as: I have 4 sides. I have 4 right angles. All my sides are equal.	3x1	3
5.	Gives two correct statements such as: They both have 4 sides. Shape F has a line of symmetry, and E does not. Shape F has four equal sides, and shape E does not.	2x1	2
Total Points			9

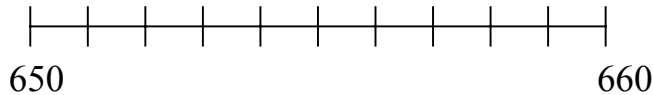
A Question of Numbers

This problem gives you the chance to:

- show you can compare and order numbers
-

Holly's class is learning about big numbers.

1. Here is part of the class number line.



Put an **X** on the number line, on the place that is halfway between 650 and 660.

What is the number that should be there? _____

2. Holly knows a pony weighs between 365 pounds and 425 pounds.

Write a possible number for the weight of a pony. _____ pounds

3. The activity center swimming pool holds between 1,875 gallons and 1,940 gallons of water.

Write a possible number for the amount of water the swimming pool holds. _____ gallons

4. A school computer could cost between \$2,950 and \$3,055.

Give three possible prices for the computer.

\$ _____

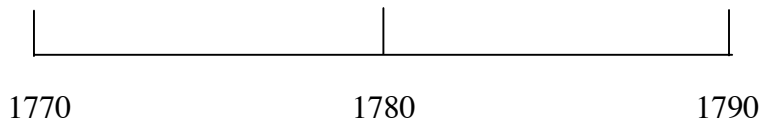
\$ _____

\$ _____

5. The American Revolution started in 1775 and finished in 1783.

In which year was it halfway through? _____

Show how you know using this number line.



6. Holly's teacher says the school library has 1000 books.

Holly thinks that the library may have 40 more books.

What is the greatest number of books that the library could have? _____

Show how you figured this out.

Tom thinks that the library may have 40 fewer books than 1000.

What is the smallest number of books that the library could have? _____

Show how you figured this out.

Task 5: A Question of Numbers		Rubric	
<ul style="list-style-type: none"> • The core elements of performance required by this task are: • • show you can compare and order numbers • <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1.	Gives correct answer: 655	1	
	Draws an X in the correct place on the number line.	1	2
2.	Gives correct answer such as: 380 pounds.	1	1
3	Gives correct answer: such as 1,920 gallons.	1	1
4.	Gives correct answers such as: \$2955 \$3000 \$3053	1	1
5	Gives correct answer: 1779 and Marks the correct year on the number line.	1	1
6.	Gives correct answer: 1040 and Shows $1000 + 40$	1	
	Gives correct answer: 960 and Shows $1000 - 40$	1	2
Total Points			8

Balanced Assessment Test – Third Grade 2008

Core Idea	Task	Score
Number Operations	The Pet Shop	
This task asks students to use addition, subtraction, multiplication, and division to solve problems about pets. Successful students could work finding half as much and twice as much and solve multi-step problems.		
Number Properties	House Numbers	
The task asks students to solve problems using odd and even numbers. Students need to use multiple constraints to reason out solutions to problems and explain their thinking. The problem also allows students to use multiplication in context. Successful students could develop a logical reason using 2 constraints to justify their answer.		
Algebra	Blob Bugs	
The task asks students to identify and work with a number sequence derived from diagrams. Students draw and extend patterns and diagrams. Successful students could work backward from a place in the pattern to the number in the sequence.		
Geometry	Looking Glass Land	
The task asks students to identify shapes with line symmetry and draw in the line of symmetry. Students are also asked to design a shape with two lines of symmetry and mark in the lines of symmetry.		
Measurement	Time to Get Clean	
The task asks students to work with a table of activities and times. Students need to reason about fractions of an hour, and add time together. Successful students could convert minutes to hours and calculate elapsed time.		

Grade 3 – 2008

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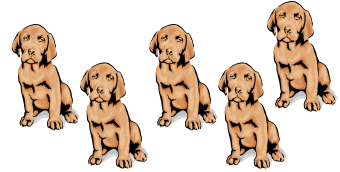
The Pet Shop

This problem gives you the chance to:

- Use adding, subtracting, multiplying and dividing whole numbers in real contexts

1. Four baskets of puppies are on sale today.
In each basket there are five puppies.

In all, how many puppies are on sale? _____



2. There are 12 snakes in the pet shop. Each snake is about 2 feet long.
If they are placed end to end how long would they be? _____ feet



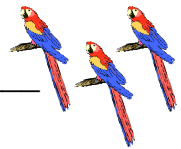
Show how you figured this out.

3. In the window of the pet shop are some rabbits.
Inside the shop there are 12 more rabbits. In all, there are 45 rabbits.

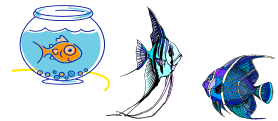
How many rabbits are in the shop window? _____
Show how you figured this out.

4. Three parrots eat 14 bags of parrot food each week.

How many bags of parrot food do three parrots eat each day? _____
Show how you figured this out.



5. In the pet shop fish tank there are 18 goldfish.
There are twice as many angel fish as goldfish in the fish tank.
And there are half as many guppies as goldfish in the fish tank.



In all, how many fish are there in the pet shop fish tank? _____
Show how you figured this out.

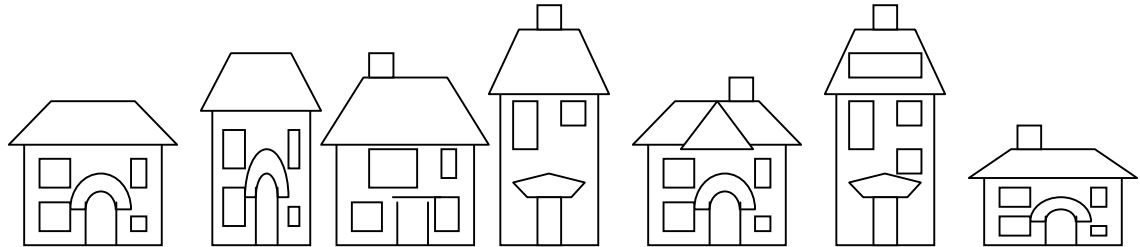
The Pet Shop		Rubric	
The core elements of performance required by this task are: • use adding, subtracting, multiplying and dividing whole numbers in real contexts Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: 20	1	1
2.	Gives correct answer: 24 feet Shows correct work such as: 2×12 <i>Special case:</i> Accept answer: 10	1 1 1s.c.	2
3.	Gives correct answer: 33 Shows correct work such as: $45 - 12$	1 1	2
4.	Gives correct answer: 2 Shows correct work such as: $14 \div 7$	1 1	2
5.	Gives correct answer: 63 fish Shows correct work such as: 18 goldfish + 36 angel fish + 9 guppies <i>Partial credit</i> One error	1 2 (1)	3
Total Points			10

House Numbers

This problem gives you the chance to:

- use odd and even numbers
-

Here is a street of 7 houses.



House Number **1** **2** **3** **4** **5** **6** **7**

1. Today, the mail man delivered two letters to each of the houses with odd numbers.
How many letters, in all, did he deliver to these houses today? _____
Show how you figured this out.

2. On each day of the week, a newspaper is delivered to each of the houses that has an even number.
How many newspapers are delivered each week to these houses? _____
Show how you figured this out.

3. There is a dog in the yard of each of the houses with an odd number between numbers 2 and 6. There is a cat in the yard of each of the first four houses.
Which house has both a dog and a cat in its yard? _____
Explain how you figured this out.

House Numbers		Rubric	
<ul style="list-style-type: none"> The core elements of performance required by this task are: use odd and even numbers. <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
<p>1. Gives correct answer: 8</p> <p>Shows correct work such as: 4×2 Accept repeated addition</p> <p><i>Partial credit</i></p> <p>One error</p>		<p>1</p> <p>2</p> <p>(1)</p>	3
<p>2. Gives correct answer: 21</p> <p>Shows correct work such as: 3×7</p> <p><i>Special case:</i> Accept answer 3</p>		<p>1</p> <p>1</p> <p>1s.c.</p>	2
<p>3. Gives correct answer: House number 3 has both a cat and a dog.</p> <p>Gives correct explanation such as: the odd numbered houses between 2 and 6 are numbers 3 and 5. As only the first 4 houses have a cat, the only house to have a cat and a dog is number 3.</p>		<p>2</p> <p>1</p>	3
Total Points			8

Blob Bugs

This problem gives you the chance to:

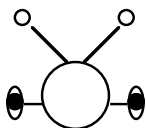
- identify and work with a linear number sequence derived from diagrams

Bugs from the land of Blob are born with one blob.

On each birthday they get two new blobs.

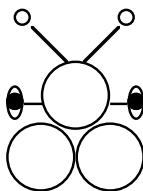
This bug is just born.

It has 1 blob.



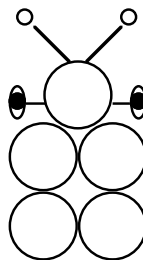
This bug is 1 year old.

It has 3 blobs.



This bug is 2 years old.

It has 5 blobs.



1. How many blobs does a 3 year old bug have?

Write your answer in the table.

Age of bug	0	1	2	3	4
Number of blobs	1	3	5		

2. How many blobs does a 4 year old bug have? _____

Show how you figured it out.

3. How many blobs does an 7 year old bug have? _____

Explain how you figured this out.

4. When a bug has 19 blobs how old is it? _____

Show how you figured this out.

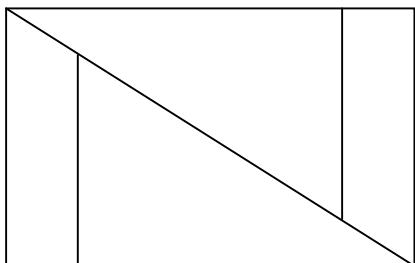
Blob Bugs		Rubric	
The core elements of performance required by this task are: • identify and work with a linear number sequence derived from diagrams Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Fills in the number 7 correctly in the table.	1	1
2.	Gives correct answer: 9 or fills in the table correctly. Draws a correct bug or shows work such as: $7 + 2 = 9$	1 1	2
3	Gives correct answer 15 blobs. Gives correct explanation such as: One blob for when it was born plus 2×7 for the years 1 to 7. or Continues table or draws a correct diagram.	1 1 or 1	2
4.	Gives correct answer: 9 years old. Shows correct work such as: $19 - 1 = 18$ $18 \div 2 = 9$ or Draws a correct diagram.	1 2 or 2	3
Total Points			8

Looking Glass Land

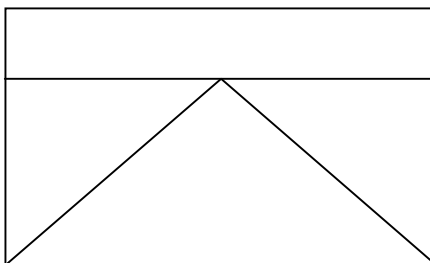
This problem gives you the chance to:

- recognize and create shapes that have lines of symmetry
-

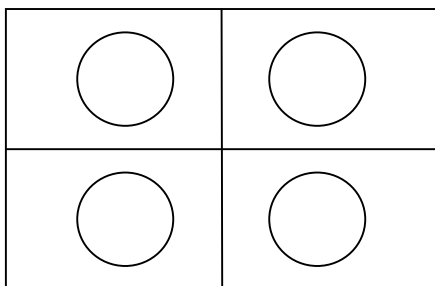
The people of Looking Glass Land are choosing a new national flag. Their new flag must have a symmetrical design.



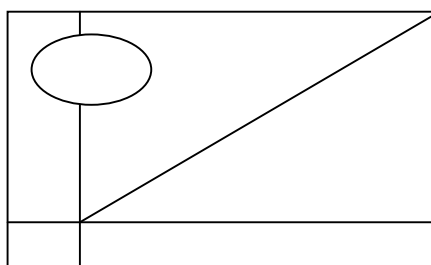
Shape A



Shape B



Shape C



Shape D

1. Which of these four flags have a symmetrical design?

2. Draw the lines of symmetry on the flags that have a symmetrical design.

3. None of the Looking Glass Land people like any of these flags.

They now want a square flag that has at least two lines of symmetry.

Design a flag with at least two lines of symmetry.

Draw the lines of symmetry on your design.



Looking Glass Land		Rubric	
The core elements of performance required by this task are: • recognize and create shapes that have lines of symmetry Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. Gives correct answers: Shape B and Shape C <i>Partial credit</i> Names one correct flag with no more than one extra.		2 (1)	 2
2. Draws the three correct lines of symmetry with no extras. <i>Partial credit</i> Looking at Shapes B and C only: Draws the 3 correct lines of symmetry with no extras or Draws 1-2 correct lines of symmetry with no more than one extra.		2 (1) or (1)	 2
3 Designs a flag with at least 2 lines of symmetry. Draws in the lines of symmetry correctly.		1 1	 2
Total Points			6

Time to Get Clean

This problem gives you the chance to:

- work with a table of activities and times

Here is a list showing what happens in Megan and Carl's bathroom every morning.

1 hour = 60 minutes



<i>Person</i>		<i>Time taken</i>
Megan	Showers, washes and dries hair, brushes teeth	$\frac{1}{2}$ hour
Carl	Showers, brushes teeth	20 minutes
Mom	Takes a bath, brushes teeth	$\frac{3}{4}$ hour
Dad	Showers, shaves, brushes teeth	50 minutes
Grandpa	Showers, shaves	35 minutes

1. Who spends the most time in the bathroom? _____
2. Who spends the shortest time in the bathroom? _____
3. How long do Dad and Grandpa spend in the bathroom, in all? _____
Show how you figured this out.
4. How much longer does Megan spend in the bathroom than Carl? _____
5. The first person goes into the bathroom at 6 a.m. and it is in use until everyone has finished getting clean. At what time will the bathroom be free? _____
Show how you figured this out.

Time to Get Clean		Rubric	
The core elements of performance required by this task are: • work with a table of activities and times Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: Dad	1	1
2.	Gives correct answer: Carl	1	1
3.	Gives correct answer: 1 hour 25 minutes accept 85 minutes Shows correct work such as: 50 minutes + 35 minutes	1 1	2
4.	Gives correct answer: 10 minutes	1	1
5.	Gives correct answer: 9 a.m. Shows correct work such as: $30 + 20 + 45 + 50 + 35$ $= 180 \div 60 = 3$ hours <i>Partial credit</i> One error	1 2 (1)	3
Total Points			8

Balanced Assessment Test – Third Grade 2009

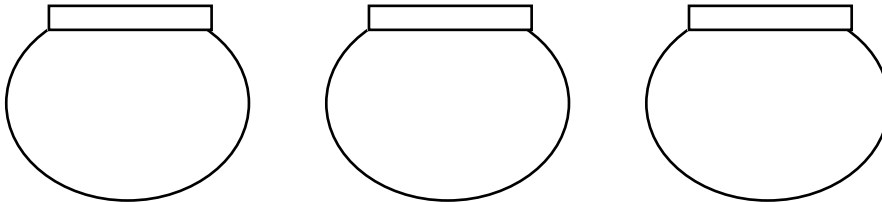
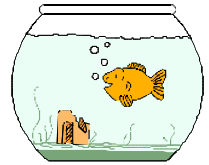
Core Idea	Task
Number Operations	Goldfish Bowls
This task asks students to use addition, subtraction, multiplication, and division to solve problems about dividing goldfish into equal groups. Successful students could explain why 36 fish could not be divided into 5 bowls equally.	
Algebra	Birthday Decorations
The task asks students to identify and extend a geometric pattern in pictures and in a table. Successful students could extend the pattern beyond the table and could interpret their answers to determine if they had enough decorations.	
Geometry	Making a Doll House
The task asks students to identify and name several common geometric shapes. Students are asked about symmetry. Successful students could compare and contrast geometric attributes of two shapes, e.g. number of sides or angles, size of angles, parallel sides.	
Data	The Math Test
The task asks students to read and interpret data on a bar graph about test scores. Successful students to reason about the number of students with a score of “more than” a given number.	
Number Operation	Valerie’s Puzzle
The task asks students to work with a 3 by 3 square and fill in numbers from 1 to 9 to make given totals. Successful students were able to add accurately and follow the rule that each number could be used only once.	

Goldfish Bowls

This problem gives you the chance to:

- use numbers in a real situation
-

1. Dan has 3 goldfish bowls.
He keeps 12 goldfish in each bowl.



How many goldfish does Dan have?
Show how you figured it out.

Dan always has the same number of fish in each of his goldfish bowls.

2. He breaks one bowl, so now he has just 2 bowls.
How many fish will he need to put in each bowl? _____

3. He buys two more bowls, so now he has 4 bowls.
How many fish will he put in each bowl? _____

4. If he has 6 bowls how many fish will he put in each bowl? _____
Show how you figured it out.

5. Dan discovers that if he has 5 fish bowls he can't have the same number of fish in each bowl. Explain how you know he is correct.

Goldfish Bowls		Rubric	
The core elements of performance required by this task are: • recognize and use equivalent fractions			
Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answer: 36 Shows work such as $12 \times 3 = 36$. Accept repeated addition or diagrams.	1 1	2
2.	Gives correct answer: 18 (Accept 6)	1ft	1
3	Gives correct answer: 9	1ft	1
4.	Gives correct answer: 6 Shows work such as $36 \div 6 = 6$. Accept repeated addition/subtraction or diagrams	1ft 1ft	2
5	Gives a correct explanation such as 5 does not divide into 36 equally or draws diagrams to show that: $36 \div 5 = 7$ with 1 left over	1ft	1
Total Points			7

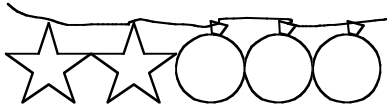
Birthday Decoration

This problem gives you the chance to:

- find and extend a pattern

Cameron is decorating the house to celebrate his mom's birthday. He makes a pattern with silver stars and red balloons.

The first piece looks like this.



When he adds piece #2 it looks like this.



1. Draw piece #3 onto the pattern above.

Cameron needs to know how many stars and balloons he will be using. He makes this table to help.

number of pieces	1	2	3	4	5
number of stars	2	4			
number of balloons	3	6			

2. Fill in the numbers in the table for three pieces.
3. How many stars and balloons will he need to make five pieces?
Write your answer in the table above.
4. When he started decorating, Cameron had 26 balloons and 19 stars. He said that he would be able to make nine pieces. Is he correct? _____
Explain your work.



Birthday Decoration		Rubric	
<ul style="list-style-type: none"> • The core elements of performance required by this task are: • • find and extend a pattern • <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
1.	Draws the 2 stars and 3 balloons to extend the pattern	2 x 1	2
2.	Fills in the table correctly: 6 stars and 9 balloons	2 x 1	2
3	Fills in the table correctly: 10 stars and 15 balloons	2 x 1	2
4	<p>Gives correct answer: No and explanation such as: He has 19 stars which would make 9 pieces of the pattern with one star left over. There are 26 balloons: 26 divided by 3 is 8 with a remainder of 2. So Cameron can only make 8 pieces of the pattern</p> <p><i>Partial credit</i> For a partially correct answer.</p>	<p>2</p> <p>(1)</p>	2
Total Points			8

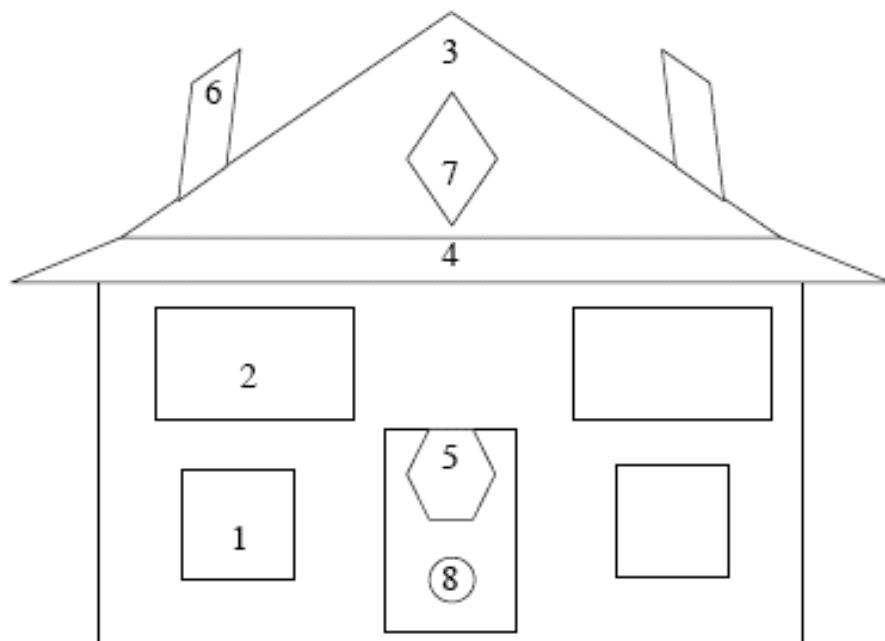
Making a Doll House

This problem gives you the chance to:

- recognize, name and describe shapes
-

Jack's dad makes doll houses. This is one of his designs.

He numbers the shapes he uses.



1. Name the shapes he has used.

- 1 _____ 2 _____ 3 _____ 4 _____
5 _____ 6 _____ 7 _____ 8 _____

2. Which one of these shapes does not have a line of symmetry? _____

3. Look at the shapes numbered 2 and 4.

Write one thing that is the same about these shapes.

Write one thing that is different about them.

4. Jack's dad likes his doll house designs to have at least one line of symmetry.

Draw the line of symmetry on this house.

8

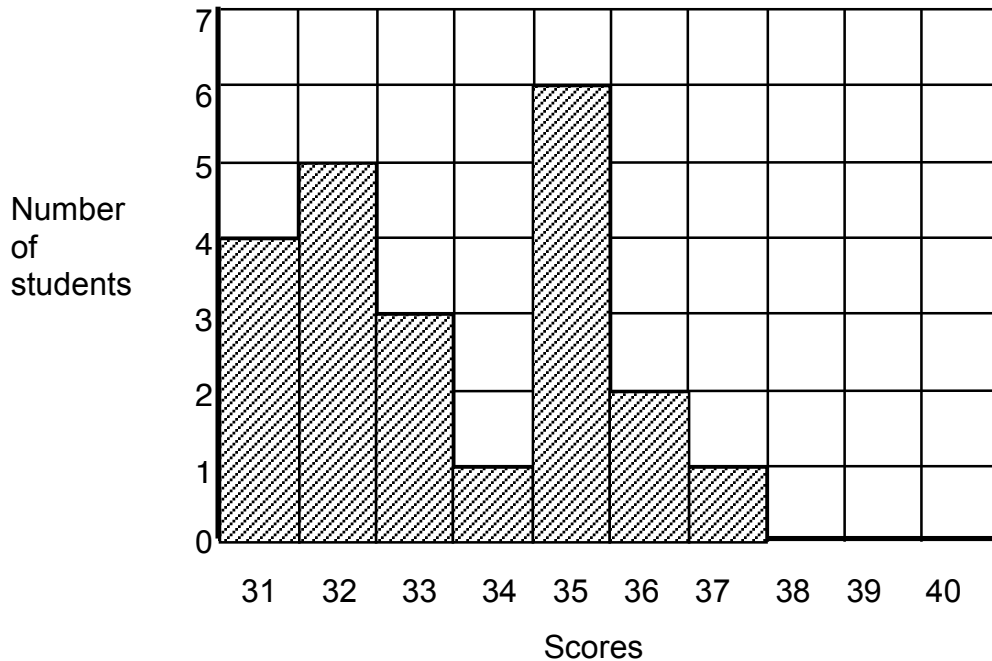
Making a Doll House		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> Recognize, name and describe shapes 			
Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1. Gives correct answers: 1. square, 2. rectangle, 3. triangle, 4. trapezoid, 5. hexagon, 6. parallelogram, 7. rhombus, 8. circle. All 8 correct <i>Partial credit</i> 7-6 correct 3 points 5-4 correct 2 points 3-2 correct 1 point		4 (3) (2) (1)	4
2. Gives correct answer: Number 6 / the parallelogram		1	1
3. Gives correct answer such as: Both have 4 sides. Gives correct answer such as: Shape 4 has no right angles and shape 2 has 4.		1 1	2
4. Draws the correct line of symmetry on the house.		1	1
Total Points			8

The Math Test

This problem gives you the chance to:

- use a bar chart

This morning the Grade 3 students took a math test.
The test was scored out of 40 points.
The students did well and they all scored more than 30 points.
Here is a graph of their results.



1. How many students scored 33 points? _____
2. Which score was earned by the largest number of students? _____
3. How many students earned **more** than 34 points? _____
Show how you figured this out.
4. How many students took this test? _____
Show how you figured this out.
5. Two children were absent this morning so they had to take the test this afternoon.
They also did very well. They scored 31 and 34. Put these scores onto the graph.

The Math Test		Rubric	
The core elements of performance required by this task are: <ul style="list-style-type: none"> • use a bar chart Based on these, credit for specific aspects of performance should be assigned as follows		points	section points
1.	Gives correct answers: 3	1	1
2.	Gives correct answer: 35	1	1
3.	Gives correct answer: 9 Shows work such as: $6 + 2 + 1 = 9$ Accept: "I counted" with correct answer.	1 1	2
4.	Gives correct answer: 22 Shows work such as: $4 + 5 + 3 + 1 + 6 + 2 + 1 = 22$ Accept: I counted with correct answer.	1 1	2
5.	Records the scores 31 and 34 accurately on the graph.	2 x 1	2
Total Points			8

Valerie's Puzzles

This problem gives you the chance to:

- solve whole number problems
-

Valerie likes to do number puzzles. Here is one of her puzzles.

Each square of nine numbers must contain **all** the numbers 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Each number should be used only **once** in each square of nine numbers.

Each row must add up to the number at the end.

Three numbers are always filled in at the start of each puzzle.

Complete these puzzles for Valerie.

1			=	12
	2		=	15
		3	=	18

		3	=	12
	6		=	15
9			=	18

		1	=	12
		4	=	15
		7	=	18

Valerie's Puzzles		Rubric	
<p>The core elements of performance required by this task are:</p> <ul style="list-style-type: none"> • solve whole number problems <p>Based on these, credit for specific aspects of performance should be assigned as follows</p>		points	section points
<p>Gives correct answers:</p> <p>Puzzle 1</p> <p>Solutions such as: 147 or 165 528 924 693 783</p> <p>Puzzle 2</p> <p>Solutions such as: 543 or 813 762 267 981 945</p> <p>Puzzle 3</p> <p>Solutions such as: 831 or 651 924 834 657 927</p> <p>Allow 1 point for each correct addition. Do not allow repeats.</p>		<p>1x3</p> <p>1x3</p> <p>1x3</p>	<p>9</p>
Total Points			9